Claims

What is claimed is:

(1) An interrupt control device for issuing interrupts to a
      central processing unit, comprising:

      an object acquiring unit for acquiring data or resource(s)
      for use by said central processing unit;

      an interrupt issuing unit for issuing an interrupt to said
      central processing unit before said object acquiring unit
      acquires said data or said resource, said interrupt
      indicating that said data or said resource has become
      available; and

      a use delay unit for delaying the use of said data or said
      resource by said central processing unit until said object
      acquiring unit acquires said data or said resource if said
      central processing unit which has received said interrupt
      requests the use of said data or said resource before said
      object acquiring unit acquires said data or said resource.

(2) The interrupt control device according to Claim 1, wherein
      said interrupt issuing unit issues said interrupt after a
      predetermined setup period elapses from when a data
      generation device generating said data starts to generate
      said data.

(3)   The interrupt control device according to Claim 2, further comprising:

a time difference measuring unit for measuring a time difference between when said object acquiring unit acquires said data and when said central processing unit which has received said interrupt requests the use of said data; and

a setup period change unit for changing said predetermined setup period according to said time difference.

(4)   The interrupt control device according to Claim 3, further comprising an acquisition time measuring unit for measuring an acquisition time from when said data generation device starts to generate said data until said object acquiring device acquires said data;

wherein said setup period change unit changes said setup period according to said acquisition time and said time difference.

(5)   The interrupt control device according to Claim 3, wherein:

said data generation device generates a plurality of data segments;

said object acquiring unit sequentially acquires said plurality of data segments for use by said central processing unit;

said interrupt issuing unit issues an interrupt to said central processing unit before said object acquiring unit acquires each of said plurality of data segments, each said interrupt indicating that the respective one of said plurality of data segments has become available;

said time difference measuring unit measures, for each of said plurality of data segments, the time difference between when said object acquiring unit acquires said data segment and when said central processing unit which has received said interrupt requests the use of said data segment; and

said setup period change unit changes said setup period according to the time differences measured by said time difference measuring unit.

(6) The interrupt control device according to Claim 5, wherein said setup period change unit changes said setup period according to the average of the time differences measured by said time difference measuring unit.

(7) The interrupt control device according to Claim 6, wherein said setup period change unit changes said setup period to make said average a predetermined small value.

(8) The interrupt control device according to Claim 5, wherein said setup period change unit changes said setup period

according to a distribution of said time differences measured by said time difference measuring unit.

(9) The interrupt control device according to Claim 8, wherein said setup period change unit changes said setup period to make a predetermined percentage of said time differences less than or equal to a predetermined value.

(10) The interrupt control device according to Claim 2, further comprising a setup period change unit for, (i) changing said setup period to a smaller value if said central processing unit which has received said interrupt requests the use of said data or said resource before said object acquiring unit acquires said data or said resource, and (ii) changing said setup period to a greater value if said central processing unit which has received said interrupt requests the use of said data or said resource after said object acquiring unit acquires said data or said resource.

(11) The interrupt control device according to Claim 1, wherein said use delay unit comprises:

a delay time calculation unit for calculating a delay time required from the time said object acquiring unit receives a request for use of said data or resource from said central processing unit which has received said interrupt until said object acquiring unit acquires said data or resource; and

a delay processing unit for (i) causing said central processing unit to use polling to request said data or said resource if said delay time is less than a predetermined threshold, and (ii) causing said central processing unit to return from interrupt handling caused by said interrupt, to delay the use of said data or said resource by said central processing unit until said object acquiring unit acquires said data or said resource.

(12) The interrupt control device according to Claim 1, wherein said interrupt issuing unit issues said interrupt to said central processing unit after a predetermined time period elapses from when a resource reservation device starts a process for reserving said resource.

(13) The interrupt control device according to Claim 12, further comprising:

a time difference measuring unit for measuring a time difference between when said object acquiring unit acquires said resource and when said central processing unit which has received said interrupt requests the use of said resource; and

a setup period change unit for changing said predetermined setup period according to said time difference.

(14) The interrupt control device according to Claim 13, further comprising an acquisition time measuring unit for measuring

an acquisition time from when said resource reservation device starts said process to reserve said resource until said object acquiring device acquires said resource;

wherein said setup period change unit changes said setup period according to said acquisition time and said time difference.

(15) An information processing device comprising a central processing unit and an interrupt control device that issues an interrupt to said central processing unit, wherein said interrupt control device comprises:

an object acquiring unit for acquiring data or resource(s) for use by said central processing unit;

an interrupt issuing unit for issuing an interrupt to said central processing unit before said object acquiring unit acquires said data or said resource, said interrupt indicating that said data or said resource has become available; and

a use delay unit for delaying the use of said data or said resource by said central processing unit until said object acquiring unit acquires said data or said resource if said central processing unit which has received said interrupt requests the use of said data or said resource before said object acquiring unit acquires said data or said resource;

wherein when said central processing unit receives said interrupt from said interrupt issuing unit, said central processing unit requests the use of said data or said resource from said interrupt control device.

(16) A method for controlling an interrupt control device issuing an interrupt to a central processing unit, comprising:

acquiring data or resource(s) for use by said central processing unit;

issuing an interrupt to said central processing unit before said data or said resource is acquired at said acquiring step, said interrupt indicating that said data or said resource has become available; and

delaying the use of said data or said resource by said central processing unit until said data or said resource is acquired if said central processing unit which has received said interrupt requests the use of said data or said resource before said object acquiring unit acquires said data or said resource.

(17) A computer-readable medium having embodied thereon computer-readable instructions effective when executing in conjunction with an interrupt control device to issue an interrupt to a central processing unit, said computer-readable instructions being further effective when

executing to:

acquire data or resource(s) for use by said central processing unit;

issue an interrupt to said central processing unit before said instructions for acquiring said data or said resource, said interrupt indicating that said data or said resource has become available; and

delay the use of said data or said resource by said central processing unit until said instructions for acquiring acquires said data or said resource if said central processing unit which has received said interrupt requests the use of said data or said resource before said instructions for acquiring acquires said data or said resource.